

ABSTRACT OF THE DISCLOSURE

A device that absorbs and separates oil from oil-water mixtures. The device is formed by combining an absorbent material with a support. The absorbent material is a hydrophobic sol-gel material processed to be an aerogel, with the support being a material of any type that can give the absorbent a place to reside. The absorbent or aerogel material may be coated onto or otherwise secured to the support material. When an oil-water mixture contacts the aerogel material, preferably in granulated or powdered form, the aerogel material will preferentially absorb and retain the oil phase, rejecting the water phase of the mixture. The end result is two separated streams, an oil only stream, and a water only stream.